

WHAT IS CLAIMED IS:

1. A system for component balancing in the processing of multiple applications comprising:

(a) means to establish and maintain response time goals for methods;

5 (b) means to delay other associated methods to optimize the processing of selected more-significant methods.

2. The system of claim 1 which includes:

 (c) means for sensing when an increased load is occurring in order to increase said delay applied to less-significant methods.

3. The system of claim 2 which includes:

 (d) means for sensing when said load is decreasing in order to reduce the delay time applied to other associated methods.

4. A method for balancing and optimizing the processing of component methods comprising the steps of:

- 5 (a) selecting component methods to gather runtime data from selected components;
- (b) calculating statistical metrics between pairs of methods (A,B,C, . . . N);
- (c) using said statistical significance tests on said metrics to select certain methods for optimization and for delay in processing.

5. The method of claim 4 which includes the step of:

5 (d) establishing a goal of specified response time for each method (A,B,C, . . . N) selected from step (c).

6. The method of claim 5 wherein step (d) includes the steps of:

(d1) targeting specific groups of methods for delay;

5 (d2) setting specified response times as a goal for said specific groups.

7. The method of claim 6 wherein step (d) includes the step of:

(d3) establishing a response time goal for each method from a setting of no delay in a method, to a maximum delay in a method.

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8. The method of claim 7 which includes the step of:

(i) graphically displaying individual response time for optimized methods against the response time goal set for a method.

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9. In a component balance system, a process for optimizing the sequence of processing component-based applications, comprising the steps of:

- 5 (a) selecting several methods (for example, A,B,C, . . . N) to be conditioned for analysis;
- (b) gathering runtime data from said selected methods in order to find statistical operating significance between selected pairs (AB, BA, AC, CA, BC, CB, . . .) of methods;
- 10 (c) collecting data to get a representative workload involving said pairs (AB, BA, AC, CA, BC, CB, . . .) of said selected methods;
- 15 (d) establishing an analysis report to determine when said method pairs (AB, BA, AC, CA, BC, CB, . . .) are processed to determine the average response time for processing when methods A,B,C, . . . N are run singly (non-overlapped) and when method pairs are run overlapped as AB, BA, AC, CA, BC, CB,

10. The method of claim 9 which includes the steps of:

5 (e) calculating a statistical number (F-value) which indicates the variance between average non-overlapped response times for A,B,C, . . . N and average response times for overlapped pairs of methods AB, BA, AC, CA, BC, CB,

10 (f) inquiring if the deviation in response times is below a threshold or if the average response time is below t milliseconds;

(g) selecting, above a threshold or an average response time, method calls having a deviation greater than t milliseconds;

15 (h) optimizing those method calls indicating a deviation greater than a threshold n involving an average response time greater than t milliseconds.

11. The method of claim 10 wherein step (h) includes the step of:

(h1) delaying the processing of one method in an overlapped pair of methods.

12. th method of claim 10 wherein step (h) includes the step of:

(h2) removing a method if a period of time H, such as one hour, elapses during which that method has not been called.

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13. In a component balanc r system, a method for optimizing the processing of component-based applications, comprising the steps of:

- 5 (a) securing a list of applications to be optimized;
- (b) prioritizing said list according to a priority assigned to each application;
- (c) accessing and capturing all or user selected components associated with said applications;
- 10 (d) analyzing which methods of which component should be optimized.

14. The method of claim 13 wherein step (d) includes the step of:

(d1) automatically optimizing the processing sequence of said applications.

15. The method of claim 13 wherein step (d) includes the step of:

(d2) manually optimizing the processing sequence of said applications.

16. A component balancer system for setting and managing response time goals for the processing of multiple component-based application methods (A,B,C, . . . N) comprising:

- 5 (a) means to discover and capture applications, machines and components to be processed using a component runtime conditioner (CRC);
- (b) means to analyze pairs of methods (AB, BA, 10 AC, CA, BC, CB) to determine which method response times are affected by other methods;
- (c) means to select those method pairs which show a substantial variance between the non-overlapped and the overlapped response times 15 during the period involved with means (b) to analyze pairs;
- (d) means to optimize the processing of selected method pairs;
- (e) means to apply delays in the processing of 20 one associated method of a method pair.

17. The system of claim 16 where said means (e) to condition delays includes:

(e1) means to calculate said delay as a delay parameter using a fuzzy logic method to optimize said processing.

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18. The system of claim 17 which includes:

(e2) means to adjust said delay increment according to the load on the system as sensed by the number of calls per second.

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